Pitaval. Mr. L. Guillet, Carnegie scholar of the Iron and Steel Institute, submitted an elaborate monograph on special steels. Of the nickel steels described, the most remarkable are Guillaume's *invar*, with 36 per cent. of nickel, with an elastic limit of 70 to 75 kg. per square mm., a breaking stress of 45 to 55 kg. per square mm., and an elongation of 35 to 25 per cent.; and *platinite*, with 46 per cent. of nickel, with an elastic limit of 60 to 70, a breaking stress of 30 to 40, and an elongation of 45 to 35 per cent. The latter is used instead of platinum in incandescent lamps. The paper summarises in an admirable manner the existing knowledge of nickel, manganese, chromium, tungsten, molybdenum, vanadium, silicon, and aluminium steels. Other papers read in this section dealt with the application of electricity in rolling mills, by Mr. L. Creplet; the double hardening of large steel forgings, by Mr. A. Pierrard; the metallographical examination of iron and steel, by Mr. H. Le Chatelier; and an apparatus for charging mercury furnaces so as to obviate the liberation of deleterious gases, by Mr. V. Spirek.

In the mining section, papers on shaft sinking were read by Messrs. Bodart, Portier, Tomson and Duvivier, and on winding engines by Mr. Henry. The use of superheated steam was dealt with by Mr. Weiss, and the use of steam accumulators by Messrs. Rateau and Chaleil. Modern pumping engines were described by Mr. Schulte, the De Laval high-lift centrifugal pump by Mr. Sosnowski, and the Sulzer high-lift centrifugal pump by Mr. Ziegler. The water-flush system of packing colliery workings was described by Mr. Jüngst and by Mr. Lafitte. Fire-damp detection was dealt with by Messrs. Chesneau, Watteyne, Stassart, and Daniel. Electric haulage was discussed by Messrs. Lapostolet, Halleux, and Henry; and the driving of the great adit-level from Gardanne to the sea was described by Mr. Domage. Altogether the programme was one of great interest, and the discussions on the papers were well sustained. The president of the congress was Mr. Alfred Habets, and the presidents of the sections were:—for metallurgy, Mr. A. Greiner, member of council of the Iron and Steel Institute; for mining, Mr. E. Harzé; for mechanics, Mr. Hubert; and for geology, Mr. Max Lohest. Among the honorary presidents of the sections who presided in turn were:—for metallurgy, Mr. R. A. Hadfield, president, and Mr. H. Bauerman, honorary member of the Iron and Steel Institute; and for mining, Mr. H. C. Peake, chairman of the Institution of Mining Engineers.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

OXFORD.—The following is the text of the speech delivered by Prof. Love in presenting Prof. G. H. Darwin for the degree of D.Sc. *honoris causa* at the Encænia on June 28:—

Salutamus Georgium Howard Darwin, magni patris magnum filium, non solum inter astronomos insignissimum, sed, ut decebat tali patre ortum, quasi clavis repertorem qua altissima naturæ arcana reseraret. Ille quidem, Carolum dico, de vita animantium doctor insignissimus, ostenderat quo modo sensim immutata figura simplicioribus et rudioribus perfectiora animalia succederent: hic noster docuit quo modo ipsa mundi compages lentas mutationes subiret. Duces quidem in hac re secutus est Newtonum, Laplacium, Kelvinum, sed suis viribus fretus est magis. Quid enim? Omnia quæ de reciproco maris motu litteris tradita sunt ipse denuo pertractavit, siderum cælo decurrentium meatus summa diligentia et scientia amplissima investigavit: idem tenuissimo quoque et subtilissimo mathematicæ genere instructus, ingenio audaci et vegeto pollens, luculentissime ostendit quo momine et nutu variæ maris agitationes tam multiplices gignantur: quod cum faceret id assecutus est ut terræ, lunæ, solis, planetarum primordia et vices satis clare adumbraret. In hoc viro agnoscimus hominem, dictu mirum, mundorum nascentium annales conscribentem.

CAMBRIDGE.—The Raymond Horton-Smith prize for 1905 has been awarded to Dr. W. L. H. Duckworth, of Jesus College, for a thesis for the degree of M.D. entitled "On the Nature of Certain Anomalous Cases of Cerebral Development."

SUBJECT to the Enfield Council agreeing to contribute one-third of the total cost of the buildings and necessary alterations, it has been decided by the Middlesex County Council to acquire the Ediswan Institute, Ponders End, the object being to convert it into a technical institute for the eastern portion of Enfield, that suitable technical instruction may be given to those engaged in the Small Arms Factory, Enfield Lock, the works of the Edison and Swan Co., &c.

A NEW movement for the encouragement of tropical research has been inaugurated in connection with the University of Liverpool. The school of research, of which Lord Mountmorres is to be the first director, will seek in every way to inquire into the natural resources of the tropical possessions of the Empire. Sir Alfred Jones, of the Elder-Dempster line of steamers, has promised to contribute 1000*l.* a year for four years towards the expenses of the movement.

ACCORDING to *Science*, the following appointments have recently been made in America:—Dr. A. W. Harris, president of North-western University; Dr. C. H. Smyth, professor of geology at Princeton University; Dr. N. Senn, professor of surgery, and Dr. F. Billings, professor of medicine, at the University of Chicago; Dr. H. K. Wolfe, professor of philosophy and education at the University of Montana; Mr. I. E. Wallin, professor of natural history in Upsala College, New Orange, N.J.

THE department of general pathology and bacteriology of King's College, London, announces a course in clinical and practical bacteriology suited to the requirements of medical practitioners and senior students. The course, which will begin on July 26 and end on August 5, will consist of lectures, demonstrations, and practical work. In connection with the same department there will be from July 27 to August 4 a vacation course in clinical pathology consisting of demonstrations and practical work. Further particulars may be obtained from Prof. Hewlett or the secretary of the college.

DURING the coming session courses of general and experimental psychology will be held at King's College, London. During the first and second terms Prof. Caldecott will deliver a series of lectures on general psychology. Prof. W. D. Halliburton, F.R.S., will lecture during the first term on the general structure and histology of the nervous system and of the organs of sense. During the second and third terms lectures on experimental psychology, accompanied by demonstrations and laboratory work, will be given by Dr. C. S. Myers in the new psychological laboratory. A departmental library has been opened at the college containing the principal English and foreign books and journals devoted to psychology.

THE Department of Agriculture and Technical Instruction for Ireland has issued its regulations and syllabuses to guide the teaching of science in Irish day secondary schools for the session 1905–6. The complete conditions regarding regulations for grants, qualifications of teachers, syllabuses of subjects, and a list of official forms are now issued in a single volume. The regulations are materially the same as those which were in force during last session. Some few syllabuses have been modified in the light of the experience gained in the last two years. It is announced that the summer courses for teachers will be continued as heretofore, but it is hoped they will, after 1908, develop into "post-graduate courses on special subjects for those already qualified."

THE British University Students' Congress met on June 28 at University College. All the universities of the United Kingdom were represented except Oxford and Cambridge, these having no organisation which can send delegates to represent their undergraduates generally. The report of the subcommittee appointed last year to consider the question of residential halls at home and abroad was presented. Fourteen British universities and colleges,

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eleven American universities, and four Australian universities have been communicated with. It was resolved to elect a committee to formulate recommendations as to what should be done to help to develop the residential system. It was decided also to extend the scope of the constitution of the congress so as to include delegates from the universities of Ireland as well as of England and Wales, and to invite universities of Scotland also to send representatives annually.

IT is announced that Mr. J. D. Rockefeller has given 2,000,000*l.* to the General Educational Board, a body incorporated by a recent Act of Congress for the purpose of promoting education in the United States, and the income is to be used for the extension of higher education in the United States. Mr. Rockefeller has also presented 200,000*l.* to Yale University. It is stated the gift to the Educational Board is to be held in perpetuity, and the income, after payment of administrative expenses, is to be used for the benefit of such institutions as the Board may select for periods, in amounts, for purposes, or on conditions to be determined by the Board, which may also employ the income in such other ways as it may deem best adapted to promote a comprehensive system of education in the United States. The income is to be used without distinction of locality, and its use is to be confined to higher education. It is designed especially for colleges as distinguished from the great universities, although there is no prohibition of grants to universities. The benefits of the donation are to be open to all, although the fund cannot be employed for giving specifically theological instruction. The fund may be used for endowment, for building, for paying off debts, or meeting current expenses.

THE report for the year 1904 of the council to the members of the City and Guilds of London Institute has been received. We notice that the number of university students attending the Central Technical College continues to increase, and that more than 110 such students are in attendance during the current session. At the last degree examination in engineering for internal students of the university, open to all engineering schools in London, eleven degrees in all were conferred, and of these eight were obtained by this college. The total number of students in the college during 1904 was 409, as compared with 304 in the preceding year. This increase in number of the students has made it necessary to provide an increase in the teaching staff, and the appointment of five new assistants has been sanctioned at a cost in salaries of 800*l.* a year. The council, in their last report, announced the steps which had been taken towards the extension of the building of the Technical College at Finsbury. Since then the plans of the new building have been approved, a tender accepted, the foundations excavated, and the building begun. In settling the details of the plans and on the question of the equipment of the new building, the committee had the benefit of the advice of Sir William White, K.C.B., F.R.S. The work of the department of technology of the institute continues to increase with the growing demand for instruction in the application of science and art to specific industries and trades. There are two directions in which, in the opinion of the council, improvements might be effected in the technical education of artisans. First, in the preparation of students before entering upon their courses of evening technical instruction, and secondly, in the standard of qualifications of the teachers nominated by local authorities to give such instruction. It is satisfactory to find that in the different branches of technology the number of students registered as attending classes in the United Kingdom was 41,089, as compared with 38,638 in the previous year. The report as a whole is an excellent record of a substantial year's work.

SOCIETIES AND ACADEMIES.

LONDON.

Entomological Society, June 7.—Mr. F. Merrifield, president, in the chair.—An earwig, *Apterygida arachidis,* Yers., found by Mr. Annandale, of Calcutta, in a box of specimens received from the Andaman Islands: M. **Burr.** When placed in a small box the earwig was alone, but next morning there were five larvæ present; two disappeared, apparently being consumed by the parent, and the remaining three were those exhibited. Mr. Burr also showed a locustid of the family Pseudophyllidæ, taken in Queensland by Mr. H. W. Simmonds among twigs and plants which it greatly resembled, together with a photograph of the insect in its natural position.—(1) Three examples of *Gnorimus nobilis,* L., taken at Woolwich on May 20 last under the bark of an old dead cherry tree, a beetle supposed to be becoming extinct in Britain; (2) a malformed specimen of *Lochmaea suturalis* which had the left posterior tibia bifid for about one-third of its length, and two tarsi, one of which had the joints considerably enlarged: E. C. **Bedwell.**—A living specimen of *Omophlus betulae,* Herbst, a beetle not known to occur in Britain, found near Covent Garden, and probably imported: O. E. **Janson.**—One ♂ and three ♀♀ of *Agrion armatum* taken this year by Mr. F. Balfour Browne, and sent to the exhibitor alive: W. J. **Lucas.**—Four specimens of the rare *Acrognathus mandibularis,* Gyll, captured on the wing towards sunset near Woking at the end of May: G. C. **Champion.**—Two aberrations of *Biston hirtaria,* Cl., both females, taken at rest on tree-trunks at Mortehoe, North Devon, April 23: Selwyn **Image.** The first aberration was tolerably normal in general coloration, but the anterior half of the fore-wings was much suffused with fuscous, and at the costa was broadly emphasised with rich black. The second aberration was semi-transparent black all over both fore- and hind-wings, the veins strongly delineated with black, powdered with ochreous.—Empty pupa-cases of *Zonosoma pendularia* demonstrating the wide variation of methods in the placing of the silken girth round the pupa: W. J. **Kaye.**—Leaves of strawberry, *Berberis japonica,* and cherry-laurel which had been attacked by a minute fungus—in the case of the Berberis identified by Prof. S. H. Vines as *Phyllosticta japonica,* Thnem.: Prof. E. B. **Poulton.** The attack was local, leaving a roundish or oval window outlined with brown, sometimes in the form of a narrow line, sometimes spreading peripherally into the leaf for a greater or less distance. In the strawberry leaves the edges of the windows were somewhat ragged, but those of the other two leaves had smooth contours, and resembled strikingly the oval transparent areas upon the fore-wings of *Kallima inachis, K. paralekta,* &c. Prof. Poulton had believed that these "windows" of Kallima represented holes gnawed by larvæ, and that the altered marginal zone reproduced the effect of the attacks of fungi entering along the freshly exposed tissues of the edge. But he now desired to withdraw his earlier hypothesis in favour of the more probable and convincing suggestion made by Mr. Grove.—Photograph of the fungus-like marks on the wings of the Oriental Kallimas: Prof. **Poulton.**—The variability of the genitalia in Lepidoptera: Dr. Karl **Jordan.**—Scents in the male of Gonepteryx: Dr. G. B. **Longstaff.** It was mentioned that whereas in *G. cleopatra* ♂ the odour was strong, the author had been unable to detect any appreciable fragrance in *G. rhamni* ♂. Such a difference, he said, seemed to imply a physiological difference of the two forms pointing to specific distinction. Dr. F. A. Dixey, in connection with Dr. Longstaff's observations, exhibited and explained the several forms of Gonepteryx occurring in the Palæarctic region.—The geographical affinities of Japanese butterflies: H. J. **Elwes.** Summing up his remarks, the author said that during the winter and spring months the plants and insects of Japan were, like the climate, Palæarctic in character, yet during the summer and autumn they were tropical.—New African Lasiocampidæ in the British Museum: Prof. C. **Aurivilius.**—Memoir on the Rhynchota taken by Dr. Wyllie chiefly in Beira and Lifu: G. W. **Kirkaldy.**

Chemical Society, June 14.—Prof. R. Meldola, F.R.S., president, in the chair.—Influence of various sodium salts on the solubility of sparingly soluble acids: J. C. **Philip.**—The dielectric constants of phenols and their ethers dissolved in benzene and *m*-xylene: J. C. **Philip** and Miss D. **Haynes.**—Synthesis by means of the silent electric discharge: J. N. **Collie.** The facts of special interest are that ethylene under the influence of the silent electric discharge at the ordinary temperature will unite with carbon

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